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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,960	10/04/2001	Michael Thomas Swab	US 010508	2668

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Corporate Patent Counsel  
Philips Electronics North America Corporation  
580 White Plains Road  
Tarrytown, NY 10591

EXAMINER

SPEARS, ERIC J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 01/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/970,960

Applicant(s)

SWAB, MICHAEL THOMAS

Examiner

Eric J Spears

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.                      6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*



The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

✓ ✓ Regarding Claim 1, line 2; Claim 7, line 2; Claim 5, line 2; Claim 6, line 2; Claim 11, line 2; and Claim 12, line 2, the term "light colored non-metallic background" is a relative term which renders the claims indefinite. The term "light colored non-metallic background" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear just what encompasses the term "light". How far from pure absolute black does a color have to be before it would be considered "light". Therefore the term "light colored" will be interpreted as any color which does not absorb substantially all of the light incident upon it.

Regarding Claim 1, line 12, and Claim 7, line 15, the term "improved" is a relative term which renders the claim indefinite. The term "improved" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Moreover, the use of the term "improved" implies comparison to something which yields different results. Since no other arrangement is being claimed it is unclear how to measure if the contrast is "improved". Therefore, this limitation will be interpreted as meaning that the intensity of the received light from the metallic part is not substantially identical to the intensity of received light of the non-metallic parts.

✓ Regarding Claims 15 and 16, these claims do not impose limitations upon either the "circuit board or card" or upon the device of the claim from which the claim in question depend. It is unclear as to what positive limitation if any these claims impose. Therefore no art has been applied to these claims as the scope of their limitation is so unclear.

Claims not specifically mentioned are indefinite due to their dependency from an indefinite base claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ninomiya et al. (5,459,794).

Regarding Claim 1, Ninomiya teaches a method of visualization of a part 14 having metallic objects against a "light" colored non-metallic background comprising illuminating the part with electromagnetic radiation that is linearly polarized in a predetermined first direction, and forming an image S1 of electromagnetic radiation reflected from the part viewed through a linear polarization filter oriented for passing electromagnetic radiation that is linearly polarized in a second direction that is substantially orthogonal to the first direction, whereby in the formed image, an enhanced contrast between the metallic objects and the background is produced (Col. 6 line 65 to Col. 7, line 23).

Regarding Claim 2, Ninomiya teaches recognizing the metallic objects in the formed image (See Abstract).

Regarding Claim 3, Ninomiya teaches the electromagnetic radiation is light, and the image is formed by a camera (Col. 6 line 65 to Col. 7, line 23; Se Fig. 1).

Regarding Claim 4, Ninomiya teaches the electromagnetic radiation is light, the image is formed by a camera of a computer vision system, and said recognizing is performed by the computer vision system (Col. 8, lines 17-39).

Regarding Claim 7, Ninomiya teaches an apparatus for visualization of a part having metallic objects against a "light" colored non-metallic background comprising: one or more sources for illuminating the part with electromagnetic radiation that is linearly polarized (11 and 12), at least one of the sources producing electromagnetic

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radiation that is linearly polarized in a predetermined first direction, and an image forming device 16 for forming an image of electromagnetic radiation reflected from the part viewed through a linear polarization filter 15 oriented for passing electromagnetic radiation that is linearly polarized in a second direction that is substantially orthogonal to the first direction, whereby in the formed image, an enhanced contrast between the metallic objects and the background is produced (Col. 6 line 65 to Col. 7, line 23).

Regarding Claim 8, Ninomiya teaches a computer vision system for recognizing the metallic objects in the formed image (See Abstract).

Regarding Claim 9, Ninomiya teaches the electromagnetic radiation is light, and the image forming device is a camera (Col. 6 line 65 to Col. 7, line 23; Se Fig. 1).

Regarding Claim 10, Ninomiya teaches the electromagnetic radiation is light, and the image forming device is a camera of the computer vision system (Col. 8, lines 17-39).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya et al. (5,459,794).

Regarding Claim 13, Ninomiya does not explicitly teach such a manipulator. However, the use of pick-and-place machines for this purpose is well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art to use the inspection apparatus of Ninomiya with a pick and place machine as recited in Claim 13, as the use of pick-and-place machines are well known in the art, in order to eliminate the manual labor involved in placing parts if assembled products.

Claims 5, 6, 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya et al. (5,459,794) in view of Ludlow et al. (6,201,892).

Regarding Claims 5, 6, 11, and 12, Ninomiya does teach the background being a ceramic (i.e. a dielectric) (Col. 7, lines 4-7). Ninomiya does not teach a ball grid array. However, Ludlow teaches using a light imaging inspection system for inspecting a ball grid array (Col. 5, lines 50-62). Therefore, it would have been obvious to one of ordinary skill in the art to use the device or method of Ninomiya with a ball grid array as taught in Ludlow, as the inspection of BGAs is well known in the art as shown by Ludlow, in order to provide for a common type of specimen in the device of Ninomiya.

Regarding Claim 14, Ninomiya does not explicitly teach such a manipulator. However, the use of pick-and-place machines for this purpose is well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art to use the inspection apparatus of Ninomiya with a pick and place machine as recited in Claim 14, as the use of pick-and-place machines are well known in the art, in order to eliminate the manual labor involved in placing parts if assembled products.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Spears whose telephone number is (703) 306-0033. The examiner can normally be reached on Monday-Friday from 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (703) 308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

EJS  
01/10/03

  
STEPHONE ALLEN  
PRIMARY EXAMINER